

Claim Rejections under 35 USC § 112

Claims 20-34 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. In particular, claim 20 is rejected because the term “the holder” in line 7 of the claim lacks antecedent basis. Applicants respectfully traverse this rejection. Lines 6-8 of claim 20 state as follows: “a carriage mechanism that grips the primary sample tube contained in a holder, whereby the primary sample tube separates from the holder, and transports the primary sample tube to the sample identification station.” Therefore, the objected term “the holder” has the required antecedent basis.

Also, claim 27 is rejected because the term “the belt” in line 2 of the claim lacks antecedent basis. In response, applicants changed the dependency of claim 27 to provide for the antecedent basis. The amended claim 27 depends on claim 26, which introduces the term “belt.” Therefore, the rejections under 35 U.S.C. § 112, second paragraph, should be withdrawn.

Claim Rejections under 35 USC § 102

Claims 1-11, 13-16, 20-29 and 33-34 are rejected under 35 U.S.C. § 102(b) as being anticipated by Lapeus *et al.*, U.S. Patent No. 5,720,377 (the ‘377 patent) and Carey *et al.*, U.S. Patent No. 5,599,501 (the ‘501 patent). This rejection is respectfully traversed.

The ‘377 patent and the ‘501 patent do not anticipate independent claims 1 and 20 of the present invention because they do not teach each element of the claims. The independent claim 1 of the present invention includes a limitation:

a carriage mechanism that grips one of the plurality of primary sample tubes and transports the primary sample tube to the sampling station and returns the primary sample tube from the sampling station to the storing station.

The independent claim 20 of the present invention includes a limitation:

a carriage mechanism that grips the primary sample tube contained in a holder, whereby the primary sample tube separates from the holder, and transports the primary sample tube to the sample identification station.

The '377 patent and the '501 patent have no teaching whatsoever of a carriage mechanism that grips and transports individual primary sample tubes. Instead, the '377 patent teaches a magnetic conveyor system that drags, conveys, and pushes sample racks containing sample tubes. Sample tubes do not separate from the sample racks until the testing is completed and the racks exit the transport system.

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In the '377 patent, sample racks are dragged, conveyed, and pushed along a transport tray of a magnetic conveyor system. The transport system of the '377 patent includes an input queue, a process queue, and an exit queue (column 5, lines 49-51). The input queue comprises an input tray 38 for loading sample racks (column 6, lines 6-16). The racks are dragged along the top surface of the input tray (column 6, lines 17-37):

The tray 38 includes a raised central portion 42 extending its length. The raised central portion 42 serves as a guide along which the sample-rack 33 travels as the sample rack 33 moves from a first end to a second end of the input tray 38...

The tray 38 further includes a back edge guide 44 which engages a slot 46 in the back-end of the sample rack 33 to prevent the sample rack 33 from becoming dislodged from the tray 38 and to prevent the rack from tipping.

The drive system moves the sample racks 33 along the top surface of the input tray 38 via a magnetic force generated on the underside of the tray 38.

The process queue is disposed adjacent the input queue (column 6, line 58). The racks are pushed by block 90 of the infeed mechanism 51 from input queue onto the process queue (column 8, lines 22-26):

Block 90 extends the distance which the surface contacting the end of the sample rack 33 travels ensuring that the sample rack 33 is pushed completely off the input queue 16 and completely on to the process queue 18.

During the sampling, the sample racks are conveyed in slots 64 of a moving process tray. (column 8, lines 27-31):

...the process queue 18 moves linearly along a track such that sample racks 33 from the input queue 16 may be fed into different spaces 64 of the process queue 18.

After the testing is completed the sample racks are pushed onto the exit queue (column 7, lines 25-30):

The transport system 14 further includes an exit pusher 72 having a push rod 74 driven by a motor drive 76. The motor drive 76 drives the push rod 74 through a slot 64 whereby a sample rack 33 is moved from the process queue 18 onto a surface 78a of an exit tray 78 of the exit queue 20 under control of controller 28.

Thus, in the '377 patent, sample tubes are not gripped and transported, but dragged, conveyed, and pushed by the transporting mechanism.

In the '377 patent, sample tubes do not separate from the sample racks until the testing is completed and the racks exit the transport system (column 5, lines 53-58, emphasis added):

Each of the sample racks 33 is adapted to hold a plurality of sample-containing test tubes generally denoted 34 and thus the sample racks 33 allow multiple test tubes 34 to be simultaneously moved from the input queue 16 to the process queue 18 and from the process queue 18 to the output queue 20.

The Examiner appears to believe that the '377 patent teaches "a carriage mechanism 51 that grips and transports the primary tubes having a bar code to the sample identification station 83, whereby the sample tube is separated from its holder 38/38a (Fig. 2. Lapeus *et al.*)." Applicants respectfully disagree with such a reading of the '377 patent.

First, the reference numerals 38/38a do not refer to the primary tube holders. Instead, the reference numerals 38/38a refer to the input tray, which is a part of the input queue. The input tray 38 is utilized for holding and moving the sample racks 33 (column 5, line 66-column 6, line 11). Sample racks 33, not the tray 38, are the primary sample tube holders.

Second, contrary to the Examiner's assertion, in the '377 patent, sample tubes do not separate from the sample racks for the bar code reading (column 7, lines 43-49):

The test tubes are oriented in the sample racks 33 such that the affixed bar code label is exposed to a bar code reader 83 disposed proximate a load position 22 of the input queue 16.

Sample
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the
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Third, the infeed mechanism 51 does not grip and transport individual primary tubes as alleged by the Examiner. Instead, the infeed mechanism 51 pushes racks with the tubes onto the process queue (column 7, line 49, - column 8, line 26):

The infeed mechanism 51 ... [includes] a belt 84 endlessly circulating around a pair of pulleys 86a, 86b. ... [A] first one of the pulleys 86a is coupled to a bidirectional motor 104 such as a stepper motor.

Referring ... to FIG. 3, coupled to the belt 84 are a plurality of outwardly extending paddles or profiles 88, 88a-88b. ... The locations of the end profiles 88a, 88h are selected such that a sample rack 33 can be positioned in the load position 22 between them...

...

The motor 104 (FIG. 4) then drives the belt 84 and profiles 88 in a clockwise direction. Coupled to profile 88a is an aluminum block 90 which contacts a first end of the sample rack 33 which is now placed in the load position 22 of the input queue 16. As the belt 84 moves in a clockwise direction, the sample rack 33a is pushed from the load position 22 of the input tray 38 to an open slot 64 in the process queue 18 by controller 28.

Block 90 extends the distance which the surface contacting the end of the sample rack 33 travels ensuring that the sample rack 33 is pushed completely off the input queue 16 and completely on to the process queue 18.

Because the infeed mechanism 51 of the '377 patent does not grip and transport individual primary tubes, it does not anticipate the gripping and transporting carriage mechanism of the present invention.

The '501 patent cannot remedy the defect of the '377 patent and is not relied upon by the Examiner for such. The '501 patent is incorporated into the '377 patent by reference for the teaching of the handling of the secondary sample containers. The '501 patent has no teaching whatsoever of a transporting mechanism for primary sample tubes, much less of a gripping and transporting mechanism of the present invention. Instead, the '501 patent teaches a continuous closed loop incubation chamber for moving the filled secondary tubes (abstract).

Therefore, a combination of the '377 patent and the '501 patent does not anticipate the instant claims 1 and 20.

The '377 patent and the '501 patent do not make the instant claims 1 and 20 obvious because the present invention provides a number of unexpected and

Not obvious

advantageous results. As was explained in the Preliminary Amendment filed with the RCE, because the instant carriage mechanism operates in a "grip and transport" mode and because it transports individual sample tubes, samples stored in the storing station can be accessed in any order and can be subjected to different testing protocols. For example, one sample may be subjected to a single test, while another can be tested by a series of analyzers. Due to the flexibility of the sample access provided in the present invention, any sample contained in the storing station can be repeatedly accessed to verify test results or to conduct a different type of testing (page 5, line 13-page 6, line 2). Additionally, because in the present invention individual sample tubes are gripped and transported to the sampling station, the carriage mechanism can access samples contained in a random assortment of different sizes and type tubes (page 10, lines 5-9).

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The advantageous results of the present invention are unexpected in view of the references cited by the Examiner. As discussed in detail above, the '377 and the '501 patents do not teach or suggest a carriage mechanism that grips and transports individual primary sample tubes. Instead, the '377 patent moves the primary sample tubes in their holding racks by dragging, conveying, and pushing. Moreover, the analyzer of the '377 patent is constructed to prevent a user from accessing sample-containing test tubes after they have been moved from the input queue 16 to the process queue 18. "Thus, while the test tubes can be easily accessed and randomly ordered and arranged and re-arranged while on the input queue 16, the placement and ordering of the samples cannot be changed by a user once the samples are moved to the process queue 18..." (column 5, lines 39-47). As a result of such an arrangement, the analyzer of the '377 patent does not allow an automatic and random access to sample tubes positioned in the on-loading sample area. The present invention unexpectedly overcomes this disadvantage by providing a more flexible carriage mechanism, which allows to grip and transport sample tubes from the storing station in any desired order.

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Therefore, nothing in the '377 and the '501 patents teaches or suggests a carriage mechanism that grips a sample tube, transports the tube to a sample

identification station, and then returns it to the storing station, as required by the instant claim 1. Similarly, nothing in the '377 and the '501 patents teaches or suggests a carriage mechanism that grips the primary sample tube contained in a holder, whereby the primary sample tube separates from the holder, and transports the primary sample tube to the sample identification station. Thus, a combination of the '377 and the '501 patents does not teach or suggest the instant claims 1 or 20. Claims 2-11, 13-16, 21-29 and 33-34 depend, directly or indirectly, from the patentable claims 1 and 20 and are, therefore, believed to be patentable for at least the same reasons as claims 1 and 20.

Claim Rejections under 35 USC § 103

Claims 17-19 and 30-32 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the '377 and the '501 patents in view of Mazza *et al.*, U.S. Patent No. 5,350,564 (the '564 patent). This rejection is respectfully traversed.

The '564 patent cannot remedy the defect of the '377 and the '501 patents, and is not relied upon by the Examiner for such. The '564 patent is used by the Examiner for teaching a tube spinner. As explained in our preliminary amendment, the '564 patent has no teaching whatsoever of moving an individual primary sample tube, much less of the carriage mechanism that grips and transports a primary sample tube to the sampling station and then returns the primary sample tube to the '564 patent teach or suggest a carriage mechanism that grips a sample tube, whereby the sample tube separates from its holder, and transports the tube to the sample identification station, as required by the instant claim 20.

Instead, the '564 patent describes an automatic chemical analyzer that utilizes interlocking carrier members for storing and transporting sample tubes in one direction, from an on-loading area to an off-loading area. Therefore, claims 1 and 20, as well as claims 17-19 and 30-32 that depend from claims 1 and 20, are patentable over the '377, '501, and '564 patents, either alone or in any combination.

Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over the '377 and the '501 patents in view of Kurosaki *et al.*, U.S. Patent No. 5,587,129 (the '129 patent). This rejection is respectfully traversed.

The '129 patent, cited against claim 12, does not address the deficiencies of the '377 and the '501 patent references. The '129 patent is relied upon for teaching a cap piercer, and it does not teach a "carriage mechanism that grips one of the plurality of primary sample tubes," as required by claim 1. Therefore, claim 1, as well as claim 12 that depends therefrom, is patentable over the '377, the '501, and the '129 patents, either alone or in any combination.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6700 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
HOGAN & HARTSON L.L.P.

Date: 6/18/02

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Version with markings to show changes made:

Please replace the text of claim 27 with the following text:

27. (Twice Amended) The system of claim [20] 26, wherein a plurality of sample tube carriages are mounted to the belt, each sample tube carriage adapted for carrying a sample tube.

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